

Extraversion and external locus of control in a youthful offender population

Arthur, Alison Louise

<http://knowledgecommons.lakeheadu.ca/handle/2453/849>

Downloaded from Lakehead University, Knowledge Commons

EXTRAVERSION AND EXTERNAL LOCUS
OF CONTROL IN A YOUTHFUL OFFENDER
POPULATION

by

ALISON LOUISE ARTHUR

THESIS

Submitted to the Faculty of Arts
in Partial Fulfillment of the Requirements
for the Degree of Master of Arts

AUGUST, 1974

Department of Psychology
Lakehead University
Thunder Bay, Ontario, Canada.

ProQuest Number: 10611202

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



ProQuest 10611202

Published by ProQuest LLC (2017). Copyright of the Dissertation is held by the Author.

All rights reserved.

This work is protected against unauthorized copying under Title 17, United States Code
Microform Edition © ProQuest LLC.

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

THESES
M.A.
1975
. A78
c. 1



© Alison Louise Arthur 1975

Canadian Thesis on Microfiche
No. 23674

215680

ABSTRACT

A correlational study between extraversion as measured by Eysenck's Personality Inventory and external locus of control as measured by Rotter's Internal-External Scale indicated no significant relationship in a sample of youthful offenders from the Thunder Bay Correctional Centre. Examination of Indian - white differences in test scores revealed a significant difference between groups in extraversion, no significant difference in neuroticism and no significant difference in degree of external control expectancy. The findings are discussed with regard to problems of test construction and in terms of factors or variables which might confound correlations between the EPI and I-E scales.

A factor analysis of Rotter's I-E scale generated four factors, suggesting for the purposes of future research that external locus of control be considered a heterogeneous personality variable and that it may be an especially useful variable when related to previous research on the personalities of delinquents.

TABLE OF CONTENTS

	Page
ABSTRACT.....	ii
LIST OF TABLES.....	iv
LIST OF FIGURES.....	vi
ACKNOWLEDGEMENTS.....	vii
INTRODUCTION.....	1
Extraversion and Delinquency.....	7
External Locus of Control and Delinquency.....	14
Comparison of Indian and White Populations.....	24
Evaluative Synopsis.....	28
Difficulties of Investigation.....	28
Problems to be Investigated.....	29
METHOD.....	30
Subjects.....	30
Measures Taken.....	30
Measure of Extraversion.....	30
Measure of External Locus of Control.....	33
Ravens Progressive Matrices.....	35
Hollingshead Two Factor Index of Social Position.....	36
Procedure.....	36

RESULTS	39
Sample	39
Correlation of EPI and I-E	39
Indian and White Differences on Extraversion Scale	41
Indian and White Differences on Neuroticism Scale	41
Indian and White Differences on I-E	41
Influences of Sequential Testing	41
DISCUSSION	45
Total Group	45
Comparison of Indian and White Samples	50
SUMMARY	53
REFERENCES	57
APPENDICES	66

LIST OF TABLES

TABLE		Page
I	Indian and white differences on EPI - Extraversion Scale.....	42
II	Indian and white differences on EPI - Neuroticism Scale.....	42
III	Indian and white differences on I-E Scale.....	43

LIST OF FIGURES

FIGURE		Page
1	Graphic presentation of selected groups on dimensions of extraversion-introversion and neuroticism-stability.....	12
2	Raven IQ distribution of total subject population.....	40

ACKNOWLEDGEMENTS

I wish to thank Dr. H.N. McLeod for his practical advise and guidance in the completion of the present study. I also wish to thank Dr. L.M. Anderson for his critical analysis of this work while in progress and his enthusiasm for discussing and developing research ideas. I am also indebted to Dr. K.A. Allan for his contribution to the final discussion and Dr. A.M. Akram for his generosity in allowing time from work to conclude this project.

The present study is designed to investigate the correlation between Eysenck's extraversion (impulsiveness and sociability) and Rotter's external locus of control (a belief that reinforcement is a consequence of forces such as chance or fate) in a delinquent population. Eysenck (1964) proposes a theory of criminality which expects to identify delinquent behaviour from an evaluation of individual trait differences. Research shows a strong correlation between extraversion and criminality (Eysenck, 1964). Rotter has indicated that externality is correlated with criminal and delinquent behaviour (Miller, 1969; Rotter, 1966). Impulsivity in delinquents is linked to external control beliefs in another study (Miller, 1969). Miller's research was based on the assumption that an analysis of personality differences between delinquents and non-delinquents yields more pertinent information on delinquency than do sociological or cultural surveys of home and environmental factors.

It is necessary to look at the composition of the

delinquent population to see if it is homogeneous in terms of personality organization. Peterson, Quay and Cameron (1959) present a model of delinquent personality delineating psychopathic, neurotic and inadequate personality types. The psychopathic type was described as impulsive, having an amoral attitude and open mistrust of others. The neurotic type was also impulsive but suffered from accompanying feelings of guilt and tension. The inadequate personality included factors of failure and a possession of a sense of incompetence (Peterson, Quay and Cameron, 1959). Relating Rotter's external control expectancy model to Peterson's, Miller (1969) felt that psychopaths included impulsivity and an external locus of control, the neurotic type could be redefined as impulsiveness and an internal locus of control, while the inadequate personality encompassed restraint or lack of impulsivity and an external locus of control. An internal locus of control was linked with the neurotic type through an association with guilt and tension, however, more recent evidence indicates that guilt, tension and hostility are positively correlated with external control beliefs (Fontana, 1968; Goss and Morosko, 1970; Nelson and Phares, 1971). Eysenck's description of criminal personality involving extraversion and neuroticism

also appears to match Peterson, Quay and Cameron's model of three types quite well. Impulsivity or lack of restraint, aggressiveness and unreliability are aspects of extraversion (Eysenck, 1960) which similarly describe Peterson's psychopathic type (Peterson, Quay and Cameron, 1959). Eysenck's neuroticism is characterized by worries, anxieties, disagreeable emotional feelings and over-reactivity and as such seems to be parallel to Peterson, Quay and Cameron's neurotic category. A combination of extraversion and neuroticism is seen by Eysenck to result in a criminal or inadequate personality (Eysenck, 1964) which might be similar to Peterson, Quay and Cameron's inadequate or failure-oriented type.

A common description of behaviour in the personality types described above is impulsivity. Impulsivity is generally defined as a lack of planned behaviour and as a spontaneous or unpredictable orientation to action. Impulsivity is delineated more narrowly by Eysenck, Rotter and others, but still retains a basic sameness in each definition which makes identifications between theories of impulsivity viable. Eysenck (1964) defines impulsivity as a physiological impairment of an ability to inhibit behavioural responses. Rotter (1966) refers to impulsivity as a behaviour which is unplanned and not

goal-directed. Other personality researchers' view of impulsivity has been summarized by Miller (1969) as unpredictable behaviour and lack of behavioural restraint.

In discussions of juvenile delinquency impulsivity usually is descriptive of asocial acts or behaviour which does not appear to be controllable by either personal or societal will or regulatory forces (Conger and Miller, 1966; Gibbens, 1970; Gluek and Gluek, 1968). An analysis of previous studies shows general lack of reinforcement for good and bad personal behaviour, and instability and inconsistency in homes of juvenile delinquents (Becker, 1964; Bennet, 1960; McCord, McCord and Zola, 1959). Discipline in the homes of delinquents appears to be erratic and casual (Bandura and Walters, 1959; McCord, McCord and Zola, 1959). Family dissension is a background factor affecting all the three personality types in Peterson, Quay and Cameron's (1959) model of juvenile delinquency. While it is generally recognized that homelife is only one area of learning experience for children, it still remains an important variable having effects on personality development, school adjustment and acquisition of life skills (Gluek and Gluek, 1968). External control belief is a personal belief that the causes of behaviour are contingent on external forces

beyond personal control (Rotter, 1966). The ability to constructively cope with frustration is diminished as external control expectancy increases (Butterfield, 1969). Thus, a greater external control belief accompanied by a lessened ability to handle frustration indicates an increased impulsivity in behaviour (Miller, 1969). The above studies seem to link delinquent behaviour to a history of life experiences which include unstable home lives, poor economic conditions and erratic discipline and controls. Theoretically these environmental conditions when associated with extraversion and external control beliefs result in delinquent behaviour (Eysenck, 1964; Gibbens and Ahrenfeldt, 1966; Joe, 1971; Rotter, 1966).

In personality theory, it is popular to examine the relevance of environmental stimuli and internal stimuli to an individual's behaviour along a continuum of inner-outer direction. There appear to be individual differences in the degree to which people depend on situational or social cues and the degree to which they rely on internal characteristics or reactions (Collins, Martin, Ashmore, and Ross, 1973). Eysenck's extraversion and Rotter's externality are personality factors which seem to correspond to an outer direction; on the extent to which personal behaviour is outer-directed or how much of behaviour is

dictated by others or by immediate situations. Both factors appear to be descriptions of a similar personality, one which relies on the environment for interpretations of personal behaviour more than on internalized guidelines. Extraversion is composed of social outgoingness, sociability and lack of internal restraints (Eysenck, 1968) and external control beliefs reflect a person's reliance on chance or powerful others for reinforcement of behaviour (Rotter, 1966).

Extraversion and delinquency.

Extraversion is a personality trait and includes the following characteristics: impulsivity, outgoingness, disinhibition of response behaviour, optimism and unreliability (Eysenck, 1968). Behaviourally extraversion is described as having many social contacts, taking part in group activities, tending to be aggressive (Eysenck, 1968). According to Eysenck (1964) extraversion is a major factor in personality theory and is an inherited, genetic quality. The two major components of extraversion are impulsivity and sociability. Impulsivity appears to be the primary characteristic of extraversion in discussions associating extraversion with delinquency.

Eysenck states that extraverts condition more slowly, more weakly and extinguish more rapidly than do normal or introverted persons (Eysenck, 1964). Extraversion affects reaction to contingent reinforcement; reinforcement is not reacted to as such unless it is immediate and repetitive (Eysenck, 1964). More learning trials are required for the establishment of associations and their implications. Extraverts apparently do not readily associate reward and punishment as contingent on their behaviour and thus in an unpredictable social environment in which behaviour is not rewarded or

punished systematically, they fail to learn appropriate behaviour patterns. It follows that Eysenck (1964) sees impulsivity as a behavioural correlate of the interaction between extraversion and this social ambiguity. Impulsivity as he uses the term refers to an hereditary physiological impairment of an ability to inhibit behavioural responses. Eysenck hypothesizes that cortical inhibition prevents mediation between response and consequence with resulting poor conditionability of extraverts (Eysenck, 1964).

Attempts have been made to develop or validate Eysenck's theory of lack of impulse control associated with extraversion. Studies correlating extraversion and the acquisition of eyeblink responses and galvanic skin responses (GSR) have validated Eysenck's theory (Eysenck, 1965). A study showing that extraversion is correlated with a preference for strong stimulation indicated that extraverts have a higher auditory threshold (Smith, 1968). The author felt that this effect was due to inhibition in the cortex - a physiological difference of extraverts (Smith, 1968). Using questionnaire measures of arousal-seeking tendencies, e.g., sensory variation, tendency toward variety of social experience, Farley and Farley (1970) found that extraversion is linked with high arousal-seeking, in order to maintain an optimal level of arousal (considering

the variety and quantity of arousal sought). The authors conclude that their findings offer support to Eysenck's hypothesis of a greater inhibitory potential in extraverts (Farley and Farley, 1970). Because of greater inhibition in the cortex, extraverts apparently have a high sensory threshold.

Other research using dependent measures of reaction time, rate of errors, alpha waves, rate of bio-electric skin response, reactivity extinction, and a variety of conditioning techniques and schedules in correlating extraversion with excitation and inhibition, has not confirmed that most extraverts are people having unbalanced nervous systems, in the sense of inhibition (Halmiova, 1970; Shanmuggam, 1962; Siegman, 1965). A study measuring the effects of extraversion on autonomic conditioning in three response systems, skin resistance, pulse rate and pulse volume, found no support for Eysenck's hypothesis (Morgenson, 1969). Some reasons offered for the confusion surrounding findings for and against Eysenck's theory include variations of conditioning techniques (Eysenck (1965) himself suggests a discrimination schedule for GSR conditioning), cognitive factors, variations of samples and a tendency to try to amalgamate and synthesize research on normal extraverts with research on extra-

verts who are also psychotic or abnormal in other clinical senses (Morgenson, 1969).

While support for Eysenck's theory that lack of impulse control in extraverts is due to inhibitory processes in the cortex remains unclear, it is certain that extraverted persons overtly show greater behavioural impulsivity as measured on the Eysenck Personality Inventory (EPI) (Eysenck, 1960; 1968). This impulsivity is best expressed as a lack of planning and lack of constraint.

Delinquent populations appear to be significantly more impulsive than non-delinquent populations, according to Eysenck's definition of impulsivity as a primary characteristic of extraversion (Berg and Toch, 1964; Eysenck, 1964, Miller, 1969; Peterson, Quay and Cameron, 1959; Reiss, 1951). In particular, delinquents who are more impulsive seem to fall into Peterson, Quay and Cameron's (1959) psychopathic and neurotic categories. For the purposes of the present study impulsivity in delinquents is viewed as a behavioural lack of restraint or unpredictability of behaviour, whether or not this behaviour is self-determined.

Extraversion has been shown to be highly correlated with delinquent and criminal behaviour (Eysenck, 1964). Further studies have indicated that psychopathic samples are more extraverted than normal samples. (Bartholomew

In Eysenck, 1964; Warburton and Cattell in Eysenck, 1964. In another study by Syed (1964) English women criminals were found to be much more extraverted and neurotic than a matched sample from the normal population (see Fig. 1).

While Eysenck's hypothesis is supported by a mass of factor analytic studies indicating that the EPI does indeed measure extraversion and by studies showing that extraversion correlates highly with delinquent behaviour, it must be realized that many of these studies are unpublished and are based on small English samples. For these reasons one may be hesitant to accept the adequacy of the above studies with regard to their validity and generalizability.

Studies of extraversion in American populations tend to support Eysenck's findings. Four measures of extraversion on the California Personality Inventory (CPI) (Social presence, Self-acceptance, Sociability and Dominance) indicate that extraversion is more prevalent in delinquent samples than in non-delinquent samples (Lanyon, 1972). Correlations between delinquency and extraversion as measured on the CPI ranged from 0.53 to 0.60 ($p < 0.01$) (Warburton and Cattell, 1964). Psychopaths in another study were comparatively unresponsive to social reinforcement;

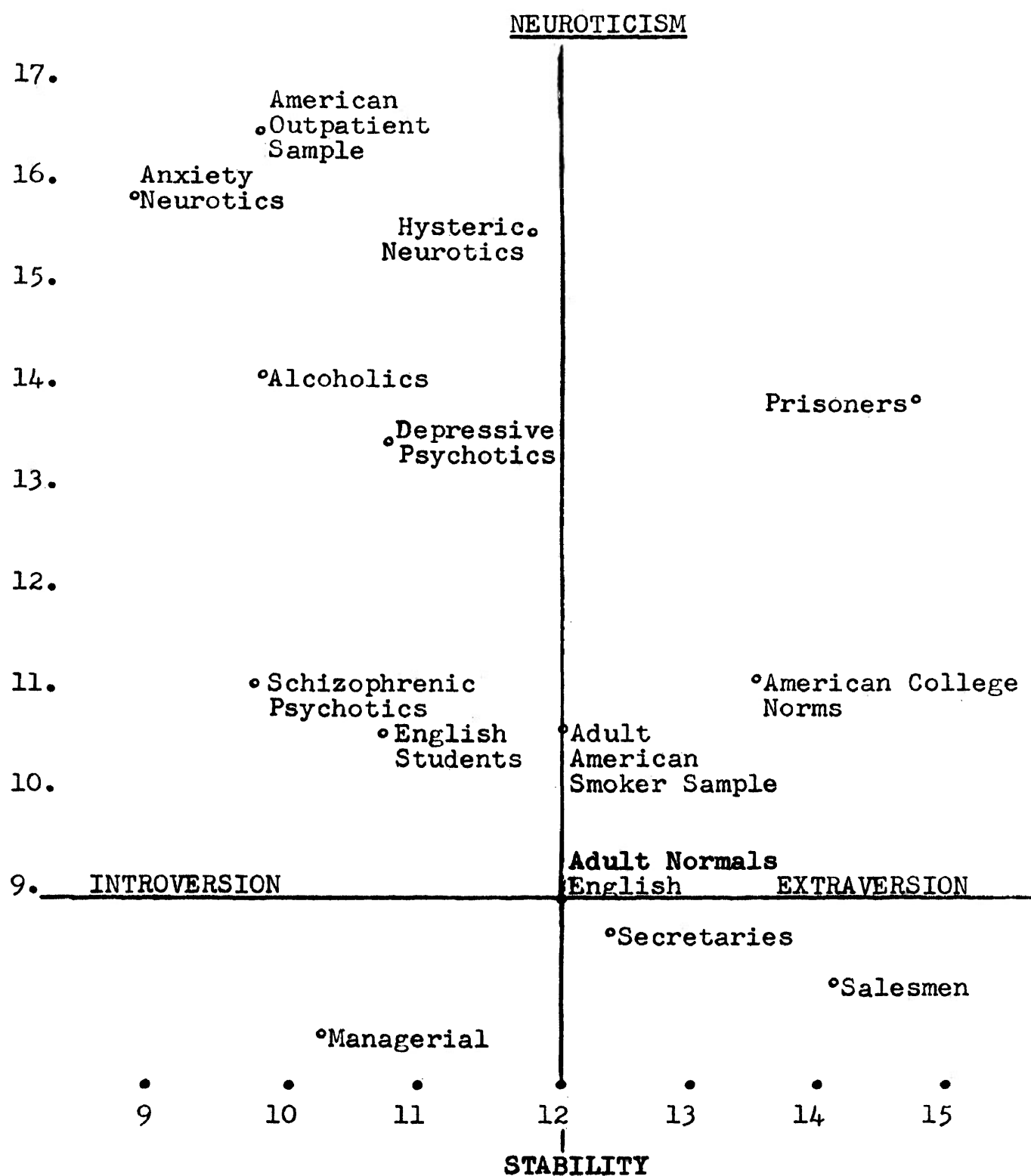


Figure 1 Graphic Presentation of Selected Groups on Dimensions of Extraversion-Introversion and Neuroticism-Stability from Eysenck (1968) EPI manual.

the extent of conditioning attained was significantly correlated with the degree of extraversion in this sample ($r = -0.25$ $p < 0.05$) (Quay and Hunt, 1965). A study of delinquent recidivists employing three purported measures of delinquency, the Minnesota Multiphasic Personality Inventory (MMPI), Maudsley Personality Inventory and Porteus Mazes indicated that the psychopathic deviate (Pd) scale of the MMPI is the major discriminator between delinquent samples and non-delinquent samples (Gibbens, 1962). There were high correlations between the Pd scale, the Maudsley Personality Inventory and the Porteus Mazes in the delinquent recidivist sample (Gibbens, 1962). The Porteus Maze test gives a Q score which is purported to be a measure of impulsiveness and aggression (Eysenck, 1968; Gibbons, 1962).

External Locus of Control and Delinquency.

External locus of control refers to the way in which reinforcement is perceived by individuals. An external control expectancy means that an environmental response is perceived as reinforcing to a particular behaviour. External locus of control is a position or a belief that environmental events are a result of fate and unrelated to personal performance. Rotter defines this concept of externality as "events due to chance or fate, as under the control of powerful others or as unpredictable due to great complexity (Rotter, 1966, p.1)".

The idea of internal-external locus of control originates from social learning theory which holds that "a reinforcement acts to strengthen an expectancy that a particular behaviour or event will be followed by that reinforcement in the future (Rotter, 1966, p.5)". An external locus of control appears to be a stable and predictable trait governing how a person will act or will perceive in any given situation. It is a learning expectancy which governs a person's style of thinking and behaving (Harlow, 1949; Lefcourt, 1966; Rotter, 1966).

Rotter's theory was tested first in skill versus chance situations. In skill situations, rewards had a greater effect on raising or lowering expectancies for

future reinforcement than in chance situations. For example, colour matching was used as an ambiguous task and half the subjects were told the task was so difficult that being correct was a matter of luck and half were told that it was a matter of skill and that some people were very good at matching. The measure of expectancy was the number of chips that subjects would bet on their probability of being correct on the succeeding trial (Lefcourt, 1966). Chance expectancy groups gave up responding much more quickly in extinction trials than did skill expectancy groups. When the experimental task is held constant, people's behaviour varies according to their belief that their own skill determines outcomes or their belief that outcomes are experimentally or chance determined (Benion, 1966; Crown and Liverant, 1963, James and Rotter, 1958; Phares, 1957).

The above studies demonstrate clearly that in experimenter or fate-controlled tasks people rely less on past experiences of reinforcement and learn less than they do in tasks in which they have personal control. Rotter says that an external control expectancy affects cognitive style and behaviour in a Skinnerian superstitious pattern of behaviour (Rotter, 1966).

External locus of control, according to Rotter (1966) develops in personality as a generalized expectancy of reinforcement. It is seen as a stable characteristic developed against a background of training which makes it impossible for the holder of this expectancy to understand the relationship between his behaviour and reinforcement contingencies. Rotter sees external control belief as a way of interpreting social learning experiences, in which there is a feeling of powerlessness resulting from an inability to control events. The small quantity of work available on background development of external expectancies seems to indicate that parental influences which are hostile, rejecting, domineering, critical, punitive and non-consistent play a major role (Joe, 1971).

Rotter attempts to show that externality is related to impulsivity through an associated poor discrimination of reinforcement contingencies. Impulsivity in Rotter's terms is unplanned, reactive behaviour in response to the belief that reinforcement is beyond individual control. Behaviour cannot be goal-directed without knowledge of its outcome (Lefcourt, 1966; Rotter, 1966). External control belief leads to a lack of identification of behaviour as unacceptable or asocial because no relation-

ship is seen between individual behaviour and environmental reactions to that behaviour (Miller, 1969).

Rotter (1966) found that external control expectancies led to perception of punishment as a result of external forces rather than individual actions. Delinquents tend to show much poorer discrimination of reward and punishment contingencies than do non-delinquents, as measured on the Situational Interpretation Test (McDavid and Shroeder, 1957). The Situational Interpretation Test is composed of brief stories - four social praise and four situational success, four social criticism and four situational failure in which the subject must specify how he interprets the response in each story. Lacking an ability to define the consequences of personal behaviour, delinquents hold an external control belief that events occur independent of their thoughts and behaviour.

In a study comparing the way in which delinquents and non-delinquents perceive socialization agents and normative prescriptions, a significant relationship was found between a perception of futility or uselessness and juvenile delinquency (Hunter, 1969). A perception of futility seems to be parallel to a perception of external control in that both suggest a lack of personal

control.

Miller's (1969) research suggests that a significant proportion of the delinquent population he sampled views the world from an external locus of control perspective. A significant correlation exists between external control as measured on Rotter's I-E scale and behavioural experimental measures of impulsivity (Miller, 1969). External control expectancy was defined as a personality trait or characteristic (Lefcourt, 1966; Rotter, 1966) possibly affecting impulsive behaviour (Miller, 1969).

Rotter also suggests that an inability to control impulses may be explained through the application of social learning principles. There is research available in the literature which supports Rotter's point of view (James, Woodruff and Werner, 1965; Joe, 1971; Lefcourt, 1966). Cohen (1955) suggests that a poor socio-economic and confusing background does not supply delinquents with appropriate motivation to control anti-social impulses. Delinquents share general cultural values but find open no effective way to fulfill or realize them.

The issue of motivation to control impulses has been raised in connection with external control expectancy (Dabbs and Kirscht, 1971). Dabbs and Kirscht determined

that motivation and expectancy are related. However, because the relationship is not definitive nor clear, it needs to be considered with close attention to behavioural choices. There appear to be important motivational characteristics associated with levels of expected control (Julien, et al, 1968; Weiner and Kukla, 1970; Weiner, et al, 1971). The authors (Julien, et al, 1968) suggest that external control belief leads persons to exercise greater control or greater concern about performance in chance situations. Motivation to control one's own behaviour seems to vary according to perceptions of environmental patterns of control.

Rotter's I-E scale as a measure of externality has been carefully validated and researched (Lefcourt, 1966; Rotter, 1966). Nevertheless, recent studies have raised problems or issues regarding the test's definition of external control and social desirability (Joe, 1971). It should be noted that these aspects may have some effect on the interpretation of correlational studies using Rotter's I-E scale. It has been suggested that externality may not be a unitary or single personality variable and may in fact be multivariate (Hersche and Shiebe, 1967; Joe, 1971; Mirels, 1970).

Three independent measures of external control

have been suggested: (1) Personal control - how much control a person believes he possesses, (2) Control ideology - how much control a person believes most people possess and (3) System modifiability - how much a person believes that social change can be affected (Lao, 1970). Lao's (1970) research also indicates that external control beliefs were compounded in a sample group in which beliefs of societal control of individuals were positively correlated with behaviour designed to control events. Another factor analysis of external control expectancies drew out two content dimensions: (1) Personal control or the degree to which an individual expects to control his personal destiny and (2) Political and social control or the degree to which an individual believes it is possible to control world and social affairs (Mirels, 1970). Mirels first factor appears to be related to luck versus hard work concepts, while the second factor does not involve these concepts. The second factor seems to be largely contingent on opinions of prevailing institutions. Factorial findings by Coan (1968) support Mirels' (1970) and suggest that the I-E scale is heavily weighted in social and political control items and does not tap personal control values effectively. The above mentioned studies strongly suggest that a

single score on externality is not an accurate representation of a unidimensional trait and that such a single score is confounding conclusions based on it.

The validity of placing external control expectancies on a continuum with internal control beliefs is questionable (Hersche and Shiebe, 1967). Externality is found to be much more diffuse in psychological meaning than is internality (Hersche and Shiebe, 1967). The authors show that externals could agree on only one adjective in self-description "self-pity". Externals self-evaluation shows greater heterogeneity than internals, i.e., they saw themselves as extremely controlled for many reasons: because of a highly competitive life situation, because they felt physically or intellectually weak in relation to those around them, or depending on whether or not they felt external controls to be benevolent or malevolent. External control beliefs have also been correlated with hostility, but hostility and aggression appear related to social aspects of externality rather than to a personality dimension (Williams and Vantress, 1969). Guilt, tension and hostility are positively correlated with external control expectancies rather than with internal control beliefs (Fontana, 1968; Goss and Morosko, 1970, Nelson and Phares, 1971).

The I-E test of external control beliefs has been shown to reflect political attitudes (Thomas, 1970). It is indicated that the test has a strong conservative bias on internality statements and on both Personal and Political-social control. Response to I-E items is possibly determined by an individual's political and social ideas, which in turn are influenced by political and social environment (Thomas, 1970). Holding of liberal political-social views leads to external control responses, because of rejection of internal items reflecting conservatism, rather than because of response to a psychological dimension of generalized expectancies of reinforcement. It is suggested that externality scores are contaminated by political viewpoints and do not discriminate between those beliefs which are subject to social influences and those which are representative of a stable personality trait (Thomas, 1970).

Recent literature has attempted to delineate variables which are felt to obscure systematic individual difference measures when Rotter's I-E scale is correlated with other personality inventories (Hjelle, 1971). Social desirability, one variable under consideration, is a response set of selectively chosen items which are chosen especially for social approval. During the

original construction of the I-E scale, Rotter eliminated items which correlated significantly with the Marlow Crowne Social Desirability Scale or items in which one part of the force choice item was chosen more than 85% of the time (Rotter, 1966). More recent investigations have evaluated each pair of items according to its social desirability scale value and have suggested that the pairs are not evenly matched (Hjelle, 1971). Hjelle (1971) concluded that Rotter's I-E scale may not be as free from social desirability as Rotter has indicated.

Comparison of Indian and White Populations.

The delinquent sample to be studied includes Indian and white subjects. It is felt that race may be a variable influencing personality development and might also affect the results on Eysenck's EPI and Rotter's I-E scale differentially. There is very little research available on Canadian Indian-white differences or similarities in personality, cultural values or delinquency (Canadian Ethnic Studies to 1971). A report of the Justice Committee on Juvenile Delinquency (1965) gives no information in their personality research as to whether or not Indians were even included in samples and if there were any Indian-white differences. Also, there are no statistics to show what proportion of the Indian population and what proportion of the white population are incarcerated and the reasons for incarceration in Indian and white delinquents.

Measures of assessment including IQ tests, achievement, aptitude, creativity and T.A.T. test batteries administered to Canadian Indian and white school children, indicated that no significant differences in personality traits exist, although there are minor attitudinal differences (Sydiaha, 1971). There were no personality attributes directly related to extraversion but aspects

of his study seem relevant to external locus of control expectancies. Indian and white urban working class children shared similar aspirational values and Indian children were aware of being economically poorer than white children (Sydiaha, 1971). Sydiaha also found that there exist marked differences attributable to schools and communities, but no differences attributable to race. In another study four communities were tested with regard to English-French differences in attitudes toward mental illness (Sydiaha, 1969). The results indicate that the attitudes toward mental illness were specific to each town. Thus it was concluded that local history or culture affects attitudinal development much more than do ethnic or general societal cultures (Sydiaha, 1969).

According to Rotter's development of external control expectancy different measures of externality may be expected from different races or cultures (Rotter, 1966). Implicit in his theory is the assumption that different races receive differential treatment in society and that this treatment creates a consistent situation in which people function. Joe (1971) states that "social class interacts with race so that individuals from lower classes and minority groups tend to hold high

expectancies of external controls" and "Indians who are restricted by environmental barriers and feel subjected to limited material opportunities develop an externally oriented outlook on life (p.624)". An American southwestern study of Indian, white and Spanish differences in degree of externality indicated that Indians hold the highest external control expectancies and whites hold the strongest internal expectancies (Graves, 1961). Indians in this study were also members of the poorest economic class and objectively had the least occupation opportunities (Rotter, 1966). In studies controlling for race and social class, significant racial differences were found between Negro and white samples, but social class affected within-race differences (Battle and Rotter, 1963). For example, higher status Negroes seemed more internally controlled than lower status Negroes. In a study of low socio-economic prisoners, Lefcourt and Ladwig (1965) discovered that Negroes tend to hold stronger external control beliefs than whites. And yet, a study of incarcerated delinquents found no differences on measures of externality between Indian and white races (Lefcourt, 1966). The evidence in favour of expecting to see racial differences in degree of externality is not clearcut.

There is no normative data on Eysenck's extraversion

available which deals with different racial groups (Eysenck, 1960). Eysenck assumes that extraversion is a primary factor in personality and has a genetic or inherited base (Eysenck, 1964). He states that extraversion interacts with environmental conditioning in a predictable way which has more to do with specific learning experiences than with cultural or societal differences. He gives no evidence to suggest that Indian and white populations differ on degree of extraversion.

Evaluative Synopsis

Difficulties of Investigation. The preceeding review attempts to establish a reason for associating extraversion and external locus of control in a juvenile delinquent population. To test this relationship or association, the most appropriate and direct tests for each variable were used - Eysenck's Personality Inventory and Rotter's I-E scale. It is considered necessary to control for age, education, socio-economic status, intelligence and race (Eysenck, 1964; Miller, 1969). However, there still exist variables which may confound or interfere with direct measures of external control expectancy. As has been pointed out, social desirability may not be clearly accounted for on Rotter's I-E scale (Hjelle, 1971; Joe, 1971). Motivation or desire to control impulsivity is another uncontrolled variable which may affect impulsive behaviour in extraverts and externally controlled persons (Joe, 1971). In relating extraversion to external locus of control, it is assumed that they are similar personality factors, based on their orientation to inner-outer control theory, the importance of impulsivity to each theory, and their description and relevance in common with Peterson, Quay and Cameron's (1959) model of delinquent personality. It is possible

extraverts and persons holding external control beliefs differ in motivation and goal-directedness. Socially oriented behaviour need not necessarily imply control by or direction from others. Similarly externality beliefs need not imply lack of skill in attaining goals. That is, unpredictable behaviour does not necessarily occur if environmental control is perceived as unpredictable or incomprehensible.

However, in the following study it is expected that in a delinquent population extraversion and external locus of control are strong and measureable factors overriding the possibly confounding factor influences, weaknesses in Rotter's I-E scale construction and motivational or attributional variables.

Problems to be Investigated. The major question raised by this paper is: Are Eysenck's extraversion and Rotter's external control expectancy measures of the same personality dimension in a juvenile delinquent population?

The second problem under consideration is the cross-cultural validity of Eysenck's EPI and Rotter I-E, with particular reference to possible Indian-white differences on degree of extraversion and strength of externality beliefs.

Method

Subjects. A delinquent population of 36 males was taken from Thunder Bay Correction Centre. All were classified as Youthful Offenders between ages 16 and 21. Mean age of the sample was 17.56 (range 16-21) years. All were legally classified as white or Indian on institutional records. Subjects were from two sections of the institution - the school section and the farm section.

Measures Taken

Measure of Extraversion. Eysenck's Personality Inventory (EPI) is a measure of personality on continuums of extraversion-introversion and neuroticism-stability. The present study primarily employed the extraversion-introversion scale of the EPI. The phenotypic aspect of extraversion is described in the following terms: outgoing, impulsive, uninhibited, possessing many social contacts, taking part in group activities, aggressive, optimistic, unreliable. Eysenck's EPI is designed to measure the above observable behaviours. Genotypic aspects of extraversion as discussed by Eysenck (1964) involve the autonomic nervous system, cortical excitation/inhibition balance and are measured with the use of such variables as conditionability of autonomic responses.

Test-retest reliability of the EPI for one year

ranges from 0.84 to 0.94 for combined forms A and B. Split-half reliability of the EPI for the combined forms is between 0.74 and 0.91, based on a sample of 1,655 normals, 210 neurotics and 90 psychotics.

The extraversion and neurotic scales correlate - 0.04 in a normal population and -0.09 in neurotic and psychotic populations. No significant differences were found between middle and working class samples (Eysenck, 1968).

A study (Bendig, 1960) on the EPI's factorial validity found two independent factors of emotionality and extraversion-introversion. Bendig (1960) obtained factor loadings of 0.78, 0.79 and 0.79 on the extraversion-introversion scale for three subscales extracted from the Maudsley Personality Inventory (MPI) (Eysenck, 1968) extraversion scale. Hildebrand (1958) discovered three factors (introversion-extraversion, neuroticism and 'g' intelligence) after giving a battery of personality and IQ tests to 145 hospitalized neurotic patients and 25 normals.

Construct validity for this test **requires** that dysthymic neurotics be high on the neuroticism (N) scale and low on the extraversion (E) scale. Psychopaths and hysterics **must** be high on E and N. This apparently has

been thoroughly validated (Carrigan, 1960). Extraversion was positively correlated with hysteric traits in a study (Caine and Hope, 1964) exploring the relationships between N and E in obsessive, hysterical and oral personalities.

The original MPI of 400 items on the E scale correlated 0.79 with the Guilford Rathymia scale (Uninhibited, carefreeness) and N scale correlated 0.92 with the Guilford Cycloid disposition (emotionality) on the Guilford-Zimmerman Temperment Survey (Lanyon, 1972). Correlations with the California Personality Inventory (CPI) (Gough, 1952) supports the constructs of the EPI. Vingoe (1960) found high positive correlations between E and CPI scales of social presence, self-acceptance, sociability and dominance. Self control correlated with E -0.25 which is significant beyond 0.25 level.

In comparing nominated groups' ratings and test scores from the EPI, it was found that individuals who impressed judges as being introverted or extraverted answered correspondingly on the EPI (Eysenck, 1963, 1962; Heslet, 1968; Vingoe, 1966).

A lie scale of eighteen items similar to the MMPI lie scale is included. It was shown to be valid and a direct estimate of response bias (Eysenck, 1959; Gibson, 1962) but there is very little reliability data available

and some suggestion that cut-off scores of 4 or 5 are too low (Lanyon, 1972).

The questionnaire, itself consists of fifty-seven 'yes' or 'no' questions (see Appendix A) and is scored with a scoring key. The number of 'yes' responses for each scale is totalled. The EPI appears to be the most valid and reliable instrument for measuring extraversion in a delinquent population.

Measures of External Locus of Control. Rotter's I-E deals exclusively with a person's belief concerning control of reinforcement in his environment. It measures generalized expectancy by using statements about attitudes of internal-external controls and not actual behaviour or use of internal-external control. It is a forced choice questionnaire consisting of twenty-nine pairs of statements (58 statements), six pairs of which are fillers and not included in the final score (see Appendix B).

Biserial item correlations are consistent on a sample of 200 males and 200 females (Rotter, 1966). Internal consistency ranges from 0.65 to 0.79 using split-half, Spearman-Brown and Kuder-Richardson Statistics (Rotter, 1966).

Test-retest reliability for one and two months

ranges from 0.49 to 0.83. Some variability was accounted for by group and individual testing situations, with group reliability being lower. Means for second testing generally dropped about one point in the direction of less externality.

Correlations with the Marlow-Crowne Social Desirability Scale range from -0.07 to -0.35. Correlations between the Marlowe Crowne Social Desirability Scale and Rotter's I-E scale were higher (0.41) for a prison population as prisoners seemed more aware of social approval because of assumed effects on parole and treatment (Lefcourt, 1966).

Correlations between I-E and intelligence measures are negligible or very low which means I-E control expectancies are held independent of intellectual capacity.

Using a factor analytic approach, most of the I-E test variance was accounted for in a general factor of control attitudes (53% of total scale variance) (Franklin, 1966; Rotter, 1966).

There is a positive interaction of internality and experience of success found in a study of I-E and adjustment (Lefcourt, 1966). Franklin (1966) found significant differences in class variables with higher internality correlated with higher socio-economic class. Battle and

Rotter (1963) also found significant I-E and class relationships, while controlling for race and intelligence. There is a significant racial difference, but high socio-economic negroes were more internal than lower socio-economic negroes. Lefcourt and Ladwig (1965) found negroes to be more external than whites in a group of low socio-economic prisoners.

Seeman's (1963) cross-cultural research, using a translated Swedish I-E scale, found significant correlations between union-membership and non-union membership; general knowledge of political affairs and internality. This study was controlled for age, education and income.

Internality has been related to the construct of independence in the sense that more internal subjects are aware of and do not respond to subtle manipulations (Crowne and Liverant, 1963; Gelter, 1966; Gore, 1966; Strickland, 1962). Internal control subjects conformed when given an obvious choice of decision, or when it was to their advantage (Crowne and Liverant, 1963).

In general Rotter's I-E scale seems to be a reliable and valid instrument for discriminating external from internal control expectancies.

Ravens Progressive Matrices. This test was administered as an indication of the level of the

subjects' intellectual functioning. Although the intelligence level of subjects was not a primary variable, it was necessary to ascertain a minimum level to ensure that subjects were capable of comprehending the questionnaires used. An intelligence score of 85 was used as the cut-off score.

Hollingshead Two Factor Index of Social Position.

The two factors measured in this index of socio-economic position are education and occupation. The person's occupation and educational level is placed on a scale ranging from 1 to 7. Weighted scores are obtained by multiplying the scale scores by a constant and then applying a multiple correlation technique. These scores are then added to obtain the Index of Social Position score. It was decided that subjects producing scores between 61 and 77 would be accepted, as these score represent Class V or the lowest socio-economic class.

Procedure. The Hollingshead Two Factor Index was determined by examining institutional files on Ss to extract all of the Indian and white boys in Class V.

The Ss were tested in two groups randomly chosen from the subject population. The EPI and I-E tests were administered in one session, with the order of presentation

reversed for one group. The examiner introduced herself as a student from Lakehead University who was carrying out a research project. It was stressed that anything written on the tests would remain confidential. It was especially emphasized that what they reported would in no way affect their institutional programme. They were told that the purpose was to see how persons of their age performed on these tests. The examiner introduced the EPI with the following standard instructions:

Here are some questions regarding the way you behave, feel and act. After each question is a space for answering 'yes' or 'no'. Try and decide whether 'yes' or 'no' represents your usual way of acting or feeling. Then blacken in the space under the column headed 'yes' or 'no'. Work quickly and don't spend too much time over any question: we want your first reaction. Be sure not to omit any questions. There are no right or wrong answers. Are there any questions? If you have any problems in understanding a question, ask.

When all of the EPI questionnaires had been completed, the subjects were handed the I-E scale with the following instructions (used by R.E. Miller, 1969):

Here are some more statements, but this time you have to do something different. Notice the statements are put together in pairs or groups of two. Read over each pair of statements. Then select the one statement of each pair which you more strongly believe to be the case as far as you concerned. Make an

X in the space beside that statement. Be sure to mark the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. If you do not understand any statement, ask me about it. Remember to choose only one of each pair of statements. Are there any questions?

The instructions for the tests were written on the questionnaires so that the subjects might refer to them if necessary.

Results

Sample. Ss were required to have a minimum IQ of 85, were required to volunteer as Ss, and had to be in the lowest class of Hollingshead Two Factor Index. The IQ distribution for the sample is shown in Figure 2. Two Ss were not included at their request. All Ss in the sample were in Hollingshead Class V. Three Ss were excluded from examination of data because their EIP questionnaires were invalid (as measured by the EPI lie scale).

The final sample population* consisted of 36 Ss who fulfilled the necessary requirements. Of these 36 Ss, 18 were Indian and 18 were white.

Correlation of EPI and I-E. Eysenck's EPI and Rotter's I-E were administered to the complete sample population and the scores (see Appendix C) of the two tests were correlated to find out if the two tests measured the same personality factor. Using a Pearson Product Moment Correlation, extraversion and external locus of control were not significantly related ($r = 0.031$, $df = 34$). No positive relationship was demonstrated, which means that in the present delinquent sample, extraversion and external locus of control are not correlated and do not appear to be similar concepts.

* The word population refers to thirty-six volunteer subjects.

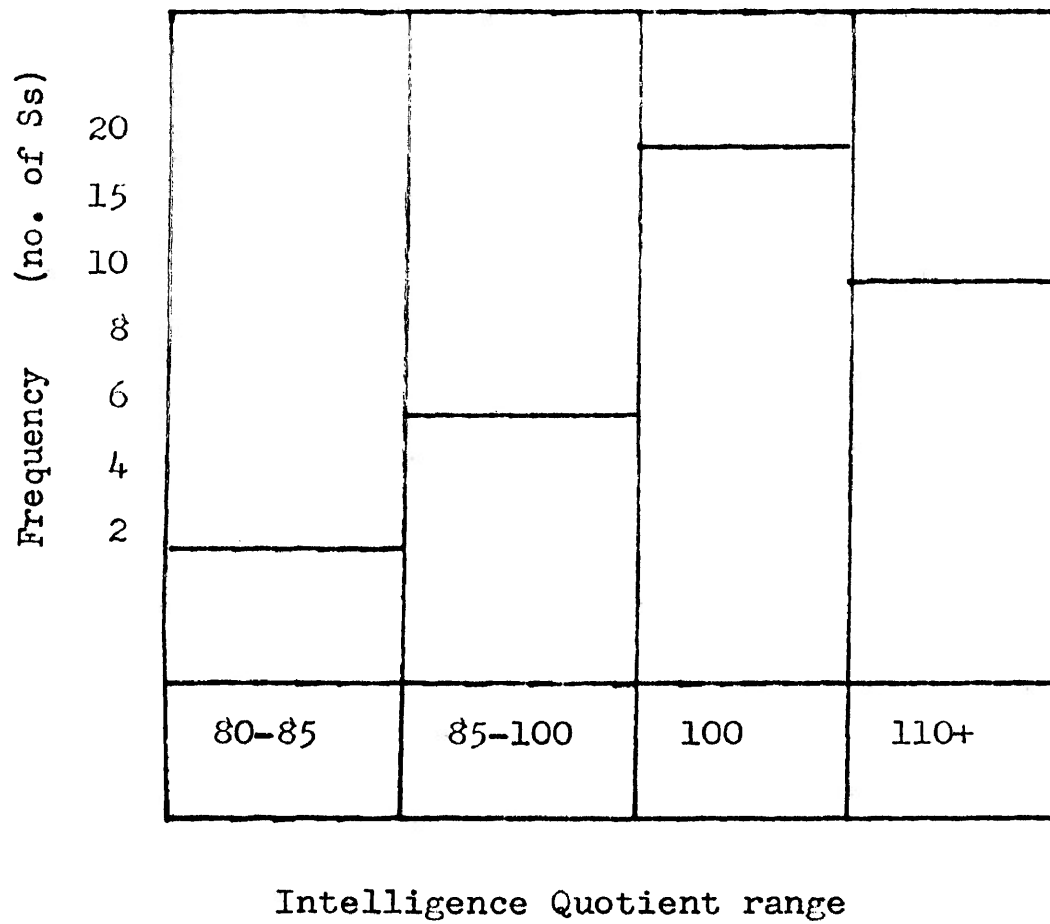
Raven IQ Distribution of Total Subject Population

Figure 2.

Indian and White Differences on Extraversion Scale.

The EPI results were examined separately on Indian and white samples. Indian subjects had a mean score of 15.44, s.d. 3.18 on the extraversion scale, whites a mean score of 12.05, s.d. 3.25. As may be seen from Table I, by a two-tailed t test, the difference between Indian-white means was significant beyond the 0.01 level.

Indian and White Differences on Neuroticism Scale.

The EPI results for the Indian and white samples on neuroticism were investigated. Indians Ss had a mean score of 11.33, s.d. 3.37 on the EPI N scale and white Ss had a mean score of 13.16, s.d. 5.48 (see Table II). Results of a two-tailed t test indicate that the difference between the Indian and white samples was not significant.

Indian and White Differences on I-E. Rotter's

I-E was examined separately on Indian and white sectors of the sample population. Indian Ss obtained a mean score of 11.83, s.d. 3.19 on the externality score, white Ss obtained a mean score of 10.50, s.d. 6.45. A two-tailed t test revealed that the above difference is not statistically significant (see Table III).

Influences of Sequential Testing. Subjects'

responses on the EPI and I-E might have been influenced by the order in which the tests were administered. To

TABLE I

Indian and White Differences on EPI - Extraversion Scale

EPI - Extraversion Scale			
Group	Mean	Number of Subjects	t Value
Indian	12.05	18	3.171*
White	15.44	18	

* $p < 0.01$

TABLE II

Indian and White Differences on EPI - Neuroticism Scale

EPI - Neuroticism Scale			
Group	Mean	Number of Subjects	t Value
Indian	11.33	18	0.105*
White	13.16	18	

* $p > 0.10$

TABLE III

Indian and White Differences on I-E Scale

I - E			
Group	Mean	Number of Subjects	t Value
Indian	11.83	18	1.309*
White	10.50	18	

* $0.20 > p > 0.10$

control for sequential effects, half of the sample were randomly selected to be given the EPI first and half were given the I-E scale first.

For the group given the I-E first, the mean score on externality was 10.92 while the group given the EPI first had a mean score of 10.23 on externality. There was no significant difference between groups on the I-E test as measured by a two tailed t test ($t = 0.576$, $df=34$).

Discussion

Total group. As indicated by the EPI - I-E correlation ($r = 0.03$), the present study failed to indicate a significant relationship between extraversion and external locus of control in a delinquent population. In a further comparison of Indian and white delinquents on the EPI and I-E questionnaires no significant differences between the groups were found on the strength of external control expectancy, nor were Indians and white varied on degree of neuroticism (N scale of EPI). The Indian sample however showed a significantly greater degree of extraversion on the EPI than did the white sample.

The present results may indicate that extraversion and external locus of control are not similar personality dimensions, or that elements of extraversion and elements of external locus of control are confounding univocal correlations of the measures of these factors of personality. In relation to the inner-outer metaphor of personality theory, extraversion and external locus of control were seen to lie on the outer end of this continuum. Extraversion was supposedly an outer-directed trait because of extravert's sociability and lack of internal restraints and similarly, external control beliefs appeared outer-

directed because of an external person's reliance on chance or powerful others for reinforcement. Differences arise when extraversion's sociability and impulsivity are seen as a form of independence; sociability does not necessarily imply control by other people and lack of internal restraint does not necessarily lead to reliance on outer control. Extraverts may function independently from either inner or outer direction (Collins, Martin, Ashmore and Ross, 1973).

Impulsivity is a behaviour common to extraversion and external locus of control and delinquent behaviour. In the light of the above discussion it may be supposed that extraverts who are impulsive may see themselves as spontaneous and free of control and thus interpret their behaviour as appropriate or healthy. On the other hand persons holding an external control expectancy may see themselves as powerless to control their own behaviour because of strong outer controls or the unpredictability of reinforcement. This perception of the external's own impulsivity is possibly seen as reliance on others or as an essentially negative characteristic. Even though extraversion and external locus of control both contain impulsivity as a characteristic trait, it is suggested that similar impulsive behaviour may originate

from differing motivational or attitudinal viewpoints which may in turn result in differential responses to the EPI and I-E questionnaires. Also, there is a difference in questionnaire styles, with the EPI asking direct questions about personal behaviour and phrased in the first person and the I-E scale posing questions in the third person with regard to attitudes or beliefs about behaviour. The above difference of test style, along with motivational and attitudinal differences associated with impulsivity may be confounding reports of impulsivity from each test.

A review of the literature gave some indications of confounding variables within Rotter's measure of external locus of control which might reduce correlations between external locus of control and other personality factors (Joe, 1971). Because of the present study's lack of correlation between external control expectancy and extraversion the above suggestion was examined by performing a factor analysis of I-E data from the total delinquent sample (see Appendix C). Four factors were derived from the analysis and were named (1) Acceptance of External Control, (2) Personal Skill, (3) Social and Political Control and (4) Optimism (see Appendix D). These four factors accounted for 17% of the total variance. The Acceptance Factor involves a

personal acceptance of the belief that reinforcement is unpredictable and a belief that the general population also hold this expectancy. Factor II or Personal Skill seems to involve a personal feeling or belief that the individual is ineffective in exercising personal control and is lacking in personal skill to attain what he wants because of the unpredictability or power of fate or others. The third factor centres around social and political control, similar to Mirels (1970) factor and indicates that an external locus of control expectancy is adopted as a result of lack of recognition from, or a feeling of hopelessness in the face of powerful social and political institutions. Factor IV implies an acceptance of external control expectancy with an optimistic note that external controls are impartial and that one person is as likely to survive in an unpredictable environment as another.

The discovery of the above four factors on the I-E scale in the present delinquent sample supports the notion that Rotter's externality is a heterogeneous concept and not a unidimensional trait. It appears to involve social and political viewpoints not clearly distinguished from personality or personal attributes thus corroborating the work of Hersche and Shiebe (1967) and Thomas (1970).

In the correlation of extraversion and external locus of control, it seems reasonable to assume that aspects of extraversion and aspects of external locus of control may cancel each other out. For example, Eysenck's impulsivity may correlate negatively with Political and Social control in external control expectancy such that Eysenck's impulsivity may assume freedom of any control and Political and Social Control assumes a lack of freedom. Extraversion also includes optimism and carefreeness components which probably correlate negatively with the Personal Skill factor on Rotter's test which seems to be a measure of feelings of incompetence and is slightly self-depreciatory.

External locus of control can be seen to correspond to Peterson, Quay and Cameron's (1959) categories of delinquent personality not as a unitary concept nor in a comprehensive way but along the factors reported in the present study. Peterson's et al, Psychopathic type might relate to Factor IV optimism in that psychopathic describes an impulsive and amoral attitude and Optimism describes a belief that in spite of what a person does he gets along as well as any other person. The Neurotic personality may correspond to responses on Factor II which reflect a sense of failure and ineffectiveness. The Inadequate

type might be described in Factors II and III in which belief in lack of personal skill and lack of ability to affect or change powerful others and fate is expressed.

Comparison of the White and Indian Samples. The present results indicate that Indian delinquents hold a slightly higher, though not statistically significant external control expectancy than white delinquents. Both groups apparently hold similar beliefs concerning the degree of external control in their experience. It is possible that Indians and whites are aware of receiving fewer reinforcements in their present environment or background histories or that the experience of incarceration has a more powerful or immediate affect on perception than either race or cultural variables. As illustrated by Sydiaha (1971), regional effects or culture may also be more influential in the present delinquent population than race or ethnic history.

There were no differences between Indian and white responses on Eysenck's neuroticism scale. This analysis was included as a control measure and as such indicates that neuroticism was not an important factor contributing to the observed lack of correlation of extraversion and external locus of control in the present delinquent sample. Neuroticism in the present sample may be considered to be

independent of racial differences, but perhaps it is similar to Peterson, Quay and Cameron's (1959) neurotic delinquent type.

It was unknown in the present study, what differences might be discovered between Indian and white delinquents on Eysenck's factor of extraversion. The present results indicate that Indian delinquents are more extraverted than white delinquents, but this result needs to be interpreted with caution as this finding might be an artifact of a small sample. The Indian mean score was higher than normative population scores including the same age range reported by Eysenck (1968). The Indian sample appears to report less impulse control and more social outgoingness than the white sample.

The present finding raises many questions and is in a sense a pilot study of racial or cultural differences on the factor extraversion. A higher score on extraversion in the Indian sample may reflect a different cultural value in responding to self-report or personal questionnaires or may reflect a difference in interpretation or evaluation of the meaning of their responses.

Referring back to Peterson, Quay and Cameron (1959) it might be supposed that Indians who are high extraverts also belong to the Psychopathic category. In such a small

sample, it is possible that the Indian sample was heavily weighted with psychopathic personalities and as such showed high scores on extraversion and slightly higher scores on external locus of control.

Summary

In the preceeding discussion an attempt was made to explain and identify the relationships between impulsivity, external locus of control, extraversion and juvenile delinquency based on the correlational results. It was assumed that correlations between extraversion and external locus of control expectancies might indicate a personality variable which partially explains or predicts juvenile delinquency. A questionnaire procedure was used and some of the difficulties related to the tests (Rotter's I-E and Eysenck's EPI) were discussed. Problems which were encountered in this study and the lack of evidence to support the initial construct might be clarified by a theoretical analysis of testing procedures and test construction.

Loevinger (1966) offers criticisms and suggestions for research with questionnaires and original test development. Relevant to the **present** study she discusses problems connected with a univocal testing approach and with procedures which tend to focus attention on the criterion or initial factor being studied rather than on correlations of items and of behaviour.

Both Rotter's I-E and Eysenck's EPI are tests designed to measure a univocal construct and both show

high intracorrelations between items (Eysenck, 1967; Rotter; 1966). I-E and EPI tests scores were correlated in the present study to test the possibility that extraversion and external control expectancies were related to or formed a general factor associated with juvenile delinquency.

A univocal approach to testing implies that homogeneous items which correlate with a test construct indicate that the original construct exists and is related to the behaviour being examined. As Loevinger (1966) points out a univocal approach in testing is unrealistic because any given personality trait must respond to equivocal cues in the environment. In factorially designed tests, each item appears chosen to measure the factor or construct, and the only relationship between items is their relationship to the common factor and not their relationship to test behaviour or behaviour outside of testing. To quote Brunswick (1966), "nature does not answer to simple questionnaires." It seems important for a test to include many discriminant and convergent items which provide independent evidence that a trait exists. A strictly univocal test narrows the range of evidence and comes back on itself rather than providing new insights into the original constructs. Univocal tests such as Rotter's I-E and Eysenck's EPI

appear to be by Loevinger's (1966) standards, measuring the tests' relationship to the proposed construct but do not measure the tests' relationship to each other or to behaviour outside of the questionnaires.

Loevinger (1966) states that ". . . differential prediction has not been notably successful whether based on criterion keyed tests or tests derived from factor analyses. Tests are constructed and interest lies in what the criteria have in common, which it is hoped is the construct one wishes to test, or interest lies in the differences among the criteria which are what one wishes to predict." Her major concern is that the focus of testing is on the original construct or criterion of a test rather than on the correlations among items and tests which are actually in existence. Loevinger (1966) proposes the use of homogenous keying to derive or get at the foci of correlation. This approach enables the focus of research to coincide with those of behaviour. Through this approach abilities and personality traits are reflected in the interrelationships of criterion performances. Homogeneous keying is a way of discerning a correlation, which is shown to relate to a generalized personality factor, rather than the approach of maximizing a single correlation, which was taken in the present study.

Homogenous keying can be applied when a wide range of divergent and equivocal items are considered together. A search for relationships between juvenile delinquency or criminal behaviour and personality organization might prove fruitful using widely diverse behavioural measures and multivariate questionnaires.

References

- Bandura, A., & Walters, R. Adolescent aggression. New York: Ronald Press, 1959.
- Baron, R.M., & Ganz, R.L. Effects of locus of control and type of feedback on the task performance of lower-class black children. J. Personality and Social Psychology, 1972, 21, 124-130.
- Bartholomew, A. Unpublished study, 1963. Cited by H.J. Eysenck. Crime and Personality. New York: Houghton-Mifflin, 1964.
- Battle, E.S., & Rotter, J.B. Children's feelings of personal control as related to social class and ethnic group. Journal of Personality, 1963, 31, 482-490.
- Becker, H.S. (ed) Social Problems. The other side: perspective on deviance. New York: Free Press of Glenco, 1964.
- Bendig, A.W. Extraversion, neuroticism, and student achievement in introductory psychology. Journal of Education Research, 1960, 53, 263-267.
- Benion, R.C. Task, trial by trial score variability of internal versus external control of reinforcement. (Unpublished doctoral dissertation), Ohio State University, 1961. Cited by J.B. Rotter, Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs: General and Applied. 1966, 80, 1-28.
- Bennett, I. Delinquent and neurotic children. New York: Basic Books, 1960.
- Berg and Toch. "Impulsive and neurotic" inmates: A study in personality and perception. Journal of Criminology, 1964, 55, 230.
- Buros, O.K. The Mental Measurements Yearbook. 1965, 6th edition.
- Buros, O.K. The Mental Measurements Yearbook. 1972, 7th edition.

- Butterfield, E.C. Locus of control, test anxiety, reactions to frustration, and achievement attitudes. Journal of Personality, 1964, 32, 298-311.
- Canada. Department of Justice. Committee on Juvenile Delinquency. Juvenile Delinquency in Canada. Ottawa: Queen's Printer, 1965.
- Carrigan, P.M. Extraversion-introversion as a dimension of personality: A reappraisal. Psychological Bulletin, 1960, 57, 329-360.
- Cline, V. The Eysenck Personality Inventory in Buros, O.K., (ed). The Seventh Mental Measurement Yearbook, VI, 544, p. 162; 1972.
- Coan (cf, 1968) in Joe, V.C. Review of the internal-external control construct as a personality variable. Psychological Reports, 1971, 28, 619-640.
- Cohen, A.K. Deviance and Control. Englewood Cliffs, N.J.: Prentice Hall, Inc., 1966.
- Cohen, A.K. Delinquent Boys. Glencoe, Ill.: The Free Press, 1955.
- Conger, J.J. and Miller, W.C. Personality, social class and delinquency. New York: John Wiley and Sons, Inc., 1966.
- Crown, D.P., & Liverant, S. Conformity under varying conditions of personal commitment. Journal of Abnormal and Social Psychology, 1963, 66, 547-555.
- Dobbs, J.M., and Kirscht, J.P. Internal control and the taking of influenza shots, Psychological Reports, 1971, 28, 959-962.
- Dies, R. Development of a projective measure of perceived locus of control. Journal of Projective Techniques and Personality Assessment, 1968, 32, 487-490.
- Eysenck, S.B. and Eysenck, H.J. Crime and personality: An empirical study of the three factor theory. British Journal of Criminology, 1970, 10, 225.

- Eysenck, H.J. Eysenck Personality Inventory Manual. San Diego, California: Educational and Industrial Testing Service, 1968.
- Eysenck, H.J. Extraversion and the Acquisition of Eyeblink and GSR Conditioned Response. Psychological Bulletin, 1965, 63, 258.
- Eysenck, H.J. Crime and Personality. New York: Houghton Mifflin, 1964.
- Eysenck, H.J. (Editor). Experiments with Drugs. New York: Pergamon Press, 1963.
- Eysenck, H.J. The Maudsley Personality Inventory. San Diego, California: Educational and Industrial Testing Service, 1962.
- Eysenck, H.J. Personality and the Estimations of Time. Perceptual and Motor Skills, 1959, 9. 405.
- Farley, F.H., Farley, S.V. Impulsiveness, Sociability and the Preference for Varied Experience. Perceptual and Motor Skills, 1970, 31, 47.
- Fontana, A.F., Klein, E.B., Lewis, E., and Levine, L. Presentation of self in mental illness. Journal of Consulting and Clinical Psychology, 1968, 32, 110-119.
- Franklin, R.D. Youth's expectancies about internal versus external control of reinforcement related to N variables (unpublished doctoral dissertation), Purdue University, 1963. Cited by J.E. Rotter. Generalized expectancies for internal versus external control of reinforcement. Psychological Monograph: General and Applied, 1966, 80, 1-28.
- Gelter, W. Variables affecting the value of the reinforcement in verbal conditioning. (Unpublished doctoral dissertation), Ohio State University, 1962. Cited by J.E. Rotter. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs: General and Applied, 1966, 8, 1-28.
- Gibbons, D.C. Crime and Punishment: A Study in Social Attitudes. Social Forces, 1969, 47 (4), 391.

- Gibbens, T.C. Psychiatric Studies of Borstal Lads.
New York: Oxford University Press, 1962.
- Gibbons, T., & Ahrenfeldt, R. Cultural Factors in Delinquency.
Philadelphia: Lippincott, 1966.
- Gibsons, M.D. The lie scale of the Maudsley Personality
Inventory. ACTA Psychologica, 1962, 20, 18-23.
- Gluek, S. & Gluek, E. Unraveling Juvenile Delinquency.
New York: The Commonwealth Fund, 1968.
- Gore, P.M. Individual differences in the prediction of
subject compliance to experimenter bias. (Unpublished
doctoral dissertation), Ohio State University, 1962.
Cited by J.E. Rotter. Generalized expectancies for
internal versus external control of reinforcement.
Psychological Monographs: General and Applied,
1966, 80, 1-28.
- Goss, A. & Morosko, T.E. Relation between a dimension
of internal-external control and the MMPI with an
alcoholic population. Journal of Consulting and
Clinical Psychology, 1970, 34, 189-192.
- Gough, H.S. California Psychological Inventory Manual.
Palo Alta: Consulting Psychologists Press, 1957.
- Graves, T.L. Time perspective and the deferred gratification
pattern in a tri-ethnic community. Unpublished
doctoral dissertation, University of Pennsylvania,
1961. Cited by J. E. Rotter. Generalized expectancies
for internal versus external control of reinforcement.
Psychological Monographs: General and Applied, 1966,
80, 1-27.
- Gurin, P., Gurin, G., Lao, R., and Beattie, M. Internal-
external control in the motivational dynamics of
Nego youth. Journal of Social Issues, 1969, 25,
29-53.
- Halmiova, O. and Uherik, A. Eysenck's Personality
Dimensions and Properties of the Nervous System.
Studia Psychologica; 1969, 11 (2), 116, in
Psychological Abstracts, 1970, 44, 20-42.
- Harlow, H.B. The Formation of Learning Sets. Psychological
Review, 1949, 56, 51-65.

- Hersch, P.D. and Sheibe, K.E. Reliability and validity of internal-external control as a personality dimension. Journal of Consulting Psychology, 1967, 31, 609-613.
- Heslet, F.E. An investigation to experimentally balance verbal frequency in small problem solving groups. (Doctoral dissertation), Ball State University, 1960. Cited by H. J. Eysenck. Eysenck Personality Inventory, San Diego: Educational and Industrial Testing Service, 1968.
- Hildebrand, M.P. A factorial study of introversion-extraversion. British Journal of Psychology, 1958, 49, 1-11.
- Hjelle, L.A. Social desirability as a variable in the locus of control scale. Psychological Reports, 1971, 28, 807-816.
- Hollingshead, A.B. Two Factor Index of Social Position. (Printed Privately), New Haven, 1957. Cited in R.E. Miller, Impulsivity and locus of control among juvenile delinquents. (Doctoral dissertation), University of Pittsburgh, Ann Arbor, Michigan: University Microfilms, 1969, No. 69-21, 038.
- Hunter, H.R. A comparison of perceptions reported by non-delinquents and delinquents regarding their identification with selected socialization agents and normative prescriptions. Dissertation Abstracts International, 1969, 30 (5 - A), 2173.
- James, W. H. Woodruff, A.B., and Werner, W. Effect of internal and external control upon changes in smoking behaviour. Journal of Consulting Psychology, 1965, 29, 184-186.
- James, W.H. & Rotter, J.B. Partial and 100% reinforcement under chance and skill conditions. Journal of Experimental Psychology, 1958, 55, 397-403.
- Joe, V.C. Review of the internal-external construct as a personality variable. Psychological Reports, 1971, 28, 619-640.
- Julian, J.W., Lichtman, C.M., and Ryckman, R. Internal-external control and the need to control. Journal of Social Psychology, 1968, 76, 43-48.

- Lanyon, R.I. The Eysenck Personality Inventory in Buros, O.K., (Ed.). The Seventh Mental Measurement Yearbook, VI, 544, p. 163, 1972.
- Lao, R.C. Internal-external control and competent and innovative behaviour among Negro college students. Journal of Personality and Social Psychology, 1970, 14, 263-270.
- Lefcourt, H. Internal versus external control of reinforcement: A review. Psychological Bulletin, 1966, 65, 206-220.
- Lefcourt, H.M. & Ladwig, G.W. The American Negro: A problem in expectancies. Journal of Personality and Social Psychology, 1965, 1, 377-380.
- Lichtenstein, E., and Kartzner, C.S. Further normative and correlational data on the internal-external (I-E) control of reinforcement scale. Psychological Reports, 1967, 21, 1014-1016.
- Loevinger, J. Psychological tests in the conceptual framework of psychology. In Hammond, K.R. (Ed.) The Psychology Egon Brunswik. New York: Holt, Rinehart and Winston, 1966.
- Manne, S.H., Kendel, A., and Rosenthal, D. The relationship between performance minus verbal scores and extraversion in a severely sociopathic population. Journal of Clinical Psychology, 1963, 19, (1), 96-97.
- McDavid, J., and Schroeder, H. The interpretation of approval and disapproval by delinquent and non-delinquent adolescents. Journal of Personality, 1957, 25, 539-549.
- McCord, W., McCord, J. and Zola, I. Origins of Crime. New York: Columbia University Press, 1959.
- Miller, R.E. Impulsivity and locus of control among juvenile delinquents. (Doctoral dissertation, University of Pittsburgh), Ann Arbor, Michigan: University Microfilms, 1969, No. 69-21, 038.
- Mirels, H.L. Dimension of internal versus external control. Journal of Consulting and Clinical Psychology, 1970, 34, 226-228.

- Morgenson, D.F. Personality, Awareness and Autonomic Conditioning. Psychophysiology, 1969, V5, No. 5, 536.
- Nelson, P.C., and Phares, E.J. Anxiety, discrepancy between need value and expectancy and internal-external control. Psychological Reports, 1971, 28, (2), 663-668.
- Peterson, D., & Becker, W. Family interaction and delinquency. In H.C. Quay (Ed.). Juvenile Delinquency, Theory and Research, Princeton, New Jersey: D. Van Nostrand, 1965.
- Peterson, D., Quay, H., and Cameron, G. Personality and background factors in juvenile delinquency as inferred from questionnaire responses. Journal of Consulting Psychology, 1959, 23, 395-399.
- Phares, E.J. Expectancy changes in skill and chance situations. Journal of Abnormal and Social Psychology, 1957, 54, 339-342.
- Quay, H.C., Hunt, W.A. Psychopathy, Neuroticism and Verbal Conditioning: A Replication and Extension. Journal of Consulting Psychology, 1965, 29, 283.
- Reiss, A.J. Delinquency as the failure of personal and social controls. American Sociological Review, 1951, 16, 196-206.
- Rotter, J.B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs: General and Applied, , 80, 1, 1-27.
- Rotter, J. B., Liverant, S., and Crowne, D. The growth and extinction of expectancies in chance controlled and skilled tests. Journal of Psychology, 1961, 52, 161-171.
- Seeman, M. Alienation and social learning in a reformatory. American Journal of Sociology, 1963, 69, 270-284.
- Shanmuggam, T.E., and Sundari, T.A. Difference between delinquent boys and non-delinquent boys in inhibition, disinhibition, and personality traits. Psychological Studies, Mysore, 1962, 7 (1), 64-66.

- Siegman, A.W. Perspective, time estimation and impulse control. Perceptual and Motor Skills, 1965, 21 (2), 561-562.
- Siegman, A.W. A comparison of young offenders and a control group in relation to N achievement. Journal of Clinical Psychology, 1961, 17, 379-380.
- Smith, S.L. Extraversion and Sensory Threshold. Psychophysiology, 1965, V 3, No. 3, 293.
- Strickland, B.R. The relationships of awareness to verbal conditioning and extinction. Unpublished doctoral dissertation, Ohio State University, 1962. Cited by J.B. Rotter. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs: General and Applied, 80, 1, 1-27.
- Sydiaha, D. An ideographic perspective in mission-oriented research. The Canadian Psychologist, 1971, 12 (3).
- Sydiaha, D. Lafave, H.G. and Rootman, I. Ethnic groups within communities. A comparative study of the expression and definition of mental illness. Psychiatric Quarterly, 1969, 43 (1), 131-146.
- Syed, I. Unpublished study cited in H.J. Eysenck. Crime and Personality, New York. Houghton Mifflin, 1964.
- Thomas, L.E. The I-E scale, ideological bias and political participation. Journal of Personality, 170, 38, 273-286.
- University Research on Canada's Indians and Metis: A preliminary checklist. Canadian Ethnic Studies, University of Calgary: 1970, 11 (1).
- Vingoe, F. J. A note on the validity of the California Psychological Inventory. Unpublished manuscript cited in H.J. Eysenck. Eysenck Personality Inventory Manual. San Diego, California: Educational and Industrial Testing Service, 1968.

- Vingoe, F.J. Validity of the Eysenck Extraversion Scale as determined by self-ratings in normals. British Journal of Social and Clinical Psychology, 1966, 5, 89-91.
- Warburton, F., and Cattell, R.B. Unpublished study. Cited by H.J. Eysenck. Crime and Personality. New York: Houghton Mifflin, 1964, p.42.
- Weiner, B., Heckhausen, H., and Meyer, W. Causal Ascriptions and Achievement Behaviour: A Conceptual Analysis of Effort and Reanalysis of Locus of Control. Journal of Personality and Social Psychology, 1972, 21 (2), 239.
- Weiner, B., and Kukla, A. An attributional analysis of achievement motivation. Journal of Personality and Social Psychology, 1970, 15, 1-20.
- Williams, C.B. and Vantress, F.E. Relation between internal-external control and aggression. Journal of Psychology, 1969, 71, 59-61.
- Witkins, H.A., Lewis, H.B., Hertzman, M., Machover, K., Meissner, P.B., and Wapner, S. Personality Through Perception. New York: Harper, 1954.
- Yablonsky, L., and Haskell, H.R. Crime and Delinquency. Chicago: Rand McNally, 1970.

APPENDICES

Appendix	Page
A	Eysenck Personality Inventory Form A.....67
B	Rotter's I-E Scale.....71
C	Raw Data for Extraversion, Neuroticism and External Locus of Control Measures.....75
D	Factorial Analysis of Rotter's I-E Scale Delinquent Data.....77
E	Four Factors on Rotter's I-E Scale.....78

APPENDIX A

Eysenck Personality Inventory - Form A

1. Do you often long for excitement?.....Yes No
2. Do you often need understanding friends Yes No
to cheer you up?.....
3. Are you usually carefree?.....Yes No
4. Do you find it very hard to take no for an Yes No
answer?.....
5. Do you stop and think things over before Yes No
doing anything?.....
6. If you say you will do something do you Yes No
always keep your promise, no matter how
inconveneint it might be to do so?.....
7. Does you mood often go up and down?.....Yes No
8. Do you generally do and say things quickly Yes No
without stopping to think?.....
9. Do you ever feel "just miserable" for no Yes No
good reason?.....
10. Would you do almost anything for a dare?.....Yes No
11. Do you suddenly feel shy when you want to Yes No
talk to an attractive stranger?.....
12. Once in a while do you lose your temper and Yes No
get angry?.....
13. Do you often do things on the spur of the Yes No
moment?.....
14. Do you often worry about things you should Yes No
not have done or said?.....
15. Generally do you prefer reading to meeting Yes No
people?.....

16. Are your feelings rather easily hurt?.....Yes No
17. Do you like going out a lot?.....Yes No
18. Do you occasionally have thoughts and ideas Yes No
that you would not like other people to know
about?.....
19. Are you sometimes bubbling over with energy Yes No
and sometimes very sluggish?.....
20. Do you prefer to have few but special Yes No
friends?.....
21. Do you daydream a lot?.....Yes No
22. When people shout at you, do you shout back?.Yes No
23. Are you often troubled about feelings of Yes No
guilt?.....
24. Are all your habits good and desirable ones?.Yes No
25. Can you usually let yourself go and enjoy Yes No
yourself a lot at a gay party?.....
26. Would you call yourself tense or "highly- Yes No
strung"?.....
27. Do other people think of you as being Yes No
very lively?.....
28. After you have done something important, Yes No
do you often come away feeling you could
have done better?.....
29. Are you mostly quiet when you are with Yes No
other people?.....
30. Do you sometimes gossip?.....Yes No
31. Do ideas run through your head so that you Yes No
cannot sleep?.....
32. If there is something you want to know Yes No
about, would you rather look it up in a
book than talk to someone about it?.....

33. Do you get palpitations or thumping in your heart?..... Yes No
34. Do you like the kind of work that you need to pay close attention to?..... Yes No
35. Do you get attacks of shaking or trembling...Yes No
36. Would you always declare everything at the customs even if you knew that you could never be found out?..... Yes No
37. Do you hate being with a crowd who play jokes on one another?..... Yes No
38. Are you an irritable person?.....Yes No
39. Do you like doing things in which you have to act quickly?..... Yes No
40. Do you worry about awful things that might happen?..... Yes No
41. Are you slow and unhurried in the way you move?..... Yes No
42. Have you ever been late for an appointment or work?..... Yes No
43. Do you have many nightmares?.....Yes No
44. Do you like talking to people so much that you would never miss a chance of talking to a stranger?..... Yes No
45. Are you troubled by aches and pains?.....Yes No
46. Would you be very unhappy if you could not see lots of people most of the time?..... Yes No
47. Would you call yourself a nervous person?....Yes No
48. Of all the people you know are there some whom you definitely do not like?..... Yes No
49. Would you say you were fairly self-confident?..... Yes No

50. Are you easily hurt when people find fault with you or your work?..... Yes No
51. Do you find it hard to really enjoy yourself at a lively party?..... Yes No
52. Are you troubled with feelings of inferiority?..... Yes No
53. Can you easily get some life into a rather dull party?..... Yes No
54. Do you sometimes talk about things you know nothing about?..... Yes No
55. Do you worry about your health?.....Yes No
56. Do you like playing pranks on others?.....Yes No
57. Do you suffer from sleeplessness?.....Yes No

APPENDIX B
ROTTER'S I-E SCALE

INSTRUCTIONS: Select one statement of each pair which you more strongly believe to be the case as far as you are concerned. Then make an X in the space beside that statement.

1. a. ____ Children get into trouble because their parents punish them too much.
b. ____ The trouble with most children nowadays is that their parents are too easy with them.
2. a. ____ Many of the unhappy things in people's lives are partly due to bad luck.
b. ____ People's misfortunes result from the mistakes they make.
3. a. ____ One of the major reasons why we have wars is because people don't take enough interest in politics.
b. ____ There will always be wars, no matter how hard people try to prevent them.
4. a. ____ In the long run people get the respect they deserve in this world.
b. ____ Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5. a. ____ The idea that teachers are unfair to students is nonsense.
b. ____ Most students don't realize the extent to which their grades are influenced by accidental happenings.
6. a. ____ Without the right breaks one cannot be an effective leader.
b. ____ Capable people who fail to become leaders have not taken advantage of their opportunities.

7. a. ___ No matter how hard you try some people just don't like you.
- b. ___ People who can't get others to like them don't understand how to get along with others.
8. a. ___ Heredity plays the major role in determining one's personality.
- b. ___ It is one's experiences in life which determines what they're like.
9. a. ___ I have often found that what is going to happen will happen.
- b. ___ Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10. a. ___ In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
- b. ___ Many times exam questions tend to be so unrelated to course work that studying is really useless.
11. a. ___ Becoming a success is a matter of hard work, luck has little or nothing to do with it.
- b. ___ Getting a good job depends mainly upon being in the right place at the right time.
12. a. ___ The average citizen can have an influence in government decisions.
- b. ___ This world is run by the few people in power, and there is not much the little guy can do about it.
13. a. ___ When I make plans, I am almost certain that I can make them work.
- b. ___ It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
14. a. ___ There are certain people who are just no good.
- b. ___ There is some good in everybody.

15. a. ___ In my case getting what I want has little or nothing to do with luck.
- b. ___ Many times we might just as well decide what to do by flipping a coin.
16. a. ___ Who gets to be the boss often depends on who was lucky enough to be in the right place first.
- b. ___ Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
17. a. ___ As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
- b. ___ By taking an active part in political and social affairs the people can control world events.
18. a. ___ Most people don't realize the extent to which their lives are controlled by accidental happenings.
- b. ___ There really is no such thing as "luck".
19. a. ___ One should always be willing to admit mistakes.
- b. ___ It is usually best to cover up one's mistakes.
20. a. ___ It is hard to know whether or not a person really likes you.
- b. ___ How many friends you have depends upon how nice a person you are.
21. a. ___ In the long run the bad things that happen to use are balanced by the good ones.
- b. ___ Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
22. a. ___ With enough effort we can wipe out political corruption.
- b. ___ It is difficult for people to have much control over the things politicians do in office.

23. a. ___ Sometimes I can't understand how teachers arrive at the grades they give.
- b. ___ There is a direct connection between how hard I study and the grades I get.
24. a. ___ A good leader expects people to decide for themselves what they should do.
- b. ___ A good leader makes it clear to everybody what their jobs are.
25. a. ___ Many times I feel that I have little influence over the things that happen to me.
- b. ___ It is impossible for me to believe that chance or luck plays an important role in my life.
26. a. ___ People are lonely because they don't try to be friendly.
- b. ___ There's not much use in trying too hard to please people, if they like you, they like you.
27. a. ___ There is too much emphasis on athletics in high school.
- b. ___ Team sports are an excellent way to build character.
28. a. ___ What happens to me is my own doing.
- b. ___ Sometimes I feel that I don't have enough control over the direction my life is taking.
29. a. ___ Most of the time I can't understand why politicians behave the way they do.
- b. ___ In the long run the people are responsible for bad government on a national as well as on a local level.

APPENDIX C

Raw Data for Extraversion, Neuroticism and
External Locus of Control Measures

TABLE I

Raw Scores for White Subjects

<u>Subjects</u>	<u>Extraversion</u>	<u>Neuroticism</u>	<u>External Locus of Control</u>
1	17	12	16
2	18	13	14
3	15	9	9
4	12	6	6
5	13	3	8
6	11	18	12
7	14	17	12
8	12	8	15
9	17	6	8
10	18	17	10
11	18	16	12
12	17	11	14
13	21	8	16
14	13	17	11
15	17	22	18
16	15	18	11
17	10	19	10
18	20	17	11
	\bar{x} 15.44	\bar{x} 13.16	\bar{x} 10.50
	sd 3.18	sd 5.48	sd 6.46

TABLE II

Raw Score for Indian Subjects

<u>Subjects</u>	<u>Extraversion</u>	<u>Neuroticism</u>	<u>External Locus of Control</u>
19	7	8	12
20	14	10	11
21	14	16	9
22	19	14	5
23	16	11	5
24	13	10	11
25	12	6	8
26	12	13	9
27	9	18	10
28	15	11	12
29	9	11	12
30	7	12	10
31	15	9	9
32	12	11	13
33	10	16	9
34	8	10	16
35	12	5	14
36	13	13	14
	\bar{x} 15.44 sd 3.18	\bar{x} 11.33 sd 3.37	\bar{x} 11.83 sd 3.19

APPENDIX D

Factorial Analysis of Rotter's I-E Scale: Delinquent Data

Equamax

Communalities

1.862	0.707	0.618	0.736	0.918	0.474	0.706	0.635
0.757	0.163	0.692	0.982	0.644	0.320	0.854	0.697
0.677	0.972	0.801	0.410	0.873	0.597	0.946	

Rotated Factors

Communalities	1	2	3	4	
1	1.862	0.801	-0.971	0.370	-0.376
2	0.707	0.132	0.828	0.018	0.059
3	0.618	-0.209	-0.097	0.745	-0.103
4	0.736	-0.029	-0.774	0.131	0.343
5	0.918	-0.119	0.337	-0.885	0.081
6	0.474	-0.198	-0.486	-0.354	0.272
7	0.706	0.784	0.132	-0.262	0.070
8	0.635	-0.352	-0.342	0.201	0.595
9	0.757	0.050	-0.002	-0.207	0.844
10	0.163	0.214	-0.198	-0.248	0.130
11	0.692	0.637	0.026	0.506	0.174
12	0.982	0.648	-0.046	0.225	0.714
13	0.644	0.668	0.147	0.052	0.416
14	0.320	0.163	-0.198	-0.023	0.504
15	0.854	0.907	-0.077	0.108	-0.119
16	0.697	0.280	0.756	0.066	0.208
17	0.677	-0.246	0.270	-0.119	0.728
18	0.972	0.673	0.287	0.661	-0.018
19	0.801	-0.119	-0.142	0.581	0.655
20	0.410	-0.077	0.624	-0.026	-0.120
21	0.873	0.745	-0.070	-0.285	-0.482
22	0.597	0.609	0.320	-0.118	-0.331
23	0.946	0.029	0.195	0.936	0.173
	17.040	5.201	4.110	3.918	3.811

Transformation Matrix

-0.906	0.080	-0.407	0.082
-0.242	-0.644	0.514	0.511
0.008	0.716	0.254	0.650
0.346	-0.257	-0.711	0.556

The factor analysis was performed by a computer programme provided by the University of Alberta. A tetrachloric matrix was generated and an equamax rotation provided.

APPENDIX E

FACTOR I

Acceptance of External Control

9. a.* I have often found that what is going to happen will happen.
- b.____ Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
16. a.* Who gets to be the boss often depends on who was lucky enough to be in the right place first.
- b.____ Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
18. a.* Most people don't realize the extent to which their lives are controlled by accidental happenings.
- b.____ There really is no such thing as "luck".
26. a.____ People are lonely because they don't try to be friendly.
- b.* There's not much use in trying too hard to please people, if they like you, they like you.
29. a.* Most of the time I can't understand why politicians behave the way they do.
- b.____ In the long run the people are responsible for bad government on a national as well as local level.

FACTOR II

Lack of Personal Skill

3. a.____ One of the major reasons why we have wars is because people don't take enough interest in politics.

- b. * There will always be wars, no matter how hard people try to prevent them.
5. a. The idea that teachers are unfair to students is nonsense.
- b. * Most students don't realize the extent to which their grades are influenced by accidental happenings.
20. a. * It is hard to know whether or not a person really likes you.
- b. How many friends you have depends upon how nice a person you are.
25. a. * Many times I feel that I have little influence over the things that happen to me.
- b. It is impossible for me to believe that chance or luck plays an important role in my life.

FACTOR III

Social and Political Control

4. a. In the long run people get the respect they deserve in this world.
- b. * Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
6. a. * Without the right breaks one cannot be an effective leader.
- b. Capable people who fail to become leaders have not take advantage of their opportunities.
29. a. * Most of the time I can't understand why politicians behave the way they do.
- b. In the long run people are responsible for bad government on a national as well as on a local level.

FACTOR IV

Optimism

11. a. Becoming a success is a matter of hard work,
luck has little or nothing to do with it.
- b. * Getting a good job depends mainly on being
in the right place at the right time.
21. a. * In the long run the bad things that happen
to us are balanced by the good ones.
- b. Most misfortunes are the result of lack of
ability, ignorance, laziness, or all three.